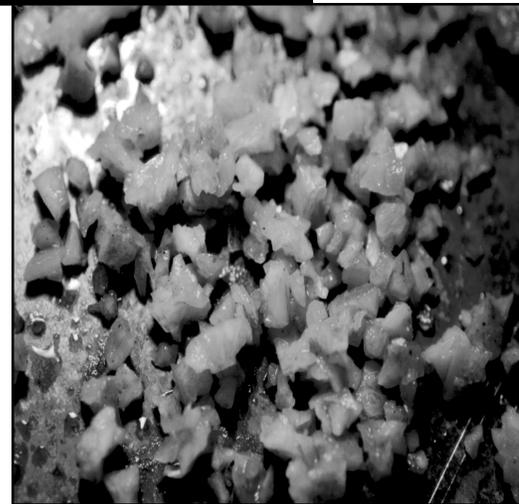
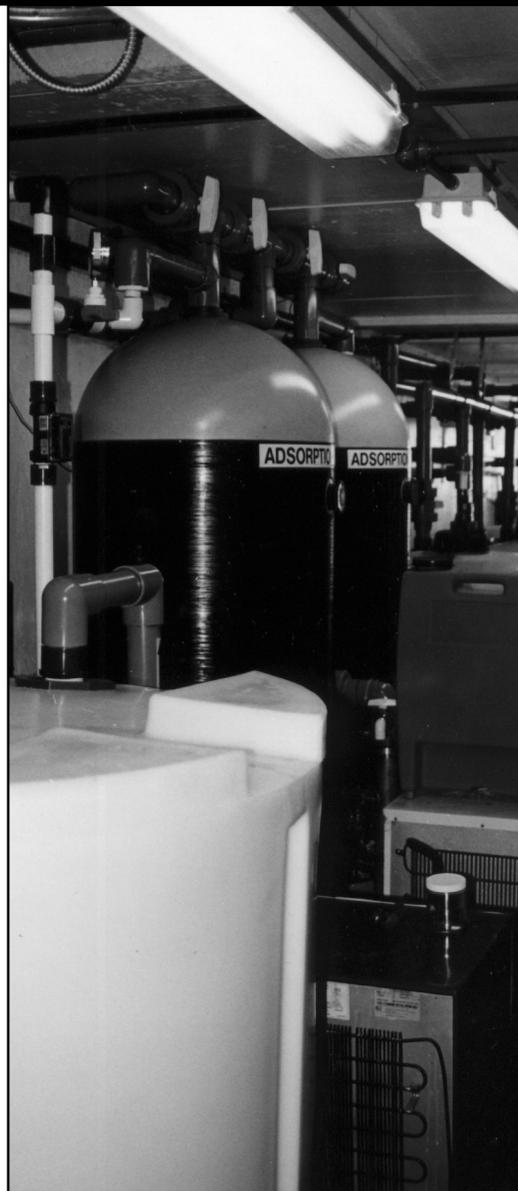


ENVIRONMENTAL TECHNOLOGY VERIFICATION REPORT FOR AMMONIA RECOVERY PROCESS



Prepared by the
Environmental Technology
Evaluation Center (EvTEC), a service
center of the Civil Engineering
Research Foundation (CERF)

CERF REPORT: #40458
January 2000



Abstract

This Technology Verification report describes the nature and scope of an environmental evaluation of ThermoEnergy Corporation's Ammonia Recovery Process (ARP) system. The information contained in this report represents data that were collected over a 3-month pilot study. The timeframe of testing, limits the documentation of data for long-term performance of the ARP system. The data as summarized within this Evaluation Report are being made available and distributed to federal, state, and local environmental regulators and to the wastewater treatment community. The goal of this report is to provide potential users and purchasers of the ThermoEnergy ARP with the information they need to make more informed decisions about using ARP at their local treatment works.

Library of Congress Cataloging-in-Publication Data

Evaluation findings for ThermoEnergy Corporation: ammonia recovery process / by the Environmental Technology Evaluation Center.

- P. cm. (Environmental technology verification report)
ISBN 0-7844-0458-5
- 1. Sewage -- Purification -- Ion exchange process.
- 2. Ammonia as fertilizer.
- 3. ThermoEnergy Corporation
- I. Title: Ammonia recovery process.
- II. ThermoEnergy Corporation
- III. Environmental Technology Evaluation Center (U.S.)
- IV. Series
TD757.5 .E94 2000
668'.63 -- dc21

99-049809
CIP

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Library of Congress Card Catalog No: 99-049809
ISBN 0-7844-0458-5
Manufactured in the United States of America

Acknowledgments

EvTEC acknowledges the support of all those who helped plan and conduct the verification activities. In particular, we would like to thank Ms. Norma Lewis, EPA ETV Project Manager, and Ms. Lauren Drees, EPA ETV, Project QA/QC Manager, of EPA's National Risk Management Research Laboratory in Cincinnati, Ohio.

We would also like to thank the ThermoEnergy ARP Technology Evaluation Panel which included: Mr. Michael Bullard, PE., Eastman Chemical Company; Mr. Luis Carrio, PE., New York City Department of Environmental Protection; Dr. Richard I. Dick, Cornell University, School of Civil and Environmental Engineering; Mr. Keith Mahoney, New York City Department of Environmental Protection; Dr. Joseph Malina, PE., University of Texas, School of Civil Engineering; Mr. John V. Martin, Back River Waste Water Treatment Plant, City of Baltimore; Dr. Charles J. Perilloux, DuPont Nylon; Mr. Eric A. Peterson, PE., U.S. Agency for International Development; Mr. Robert C. Ready, PE., Miami Water and Sewer Authority; Dr. James E. Smith Jr., U.S. Environmental Protection Agency; and Dr. Charles I. Noss, Water Environment Research Foundation.

In addition, we want to thank Mr. Michael Barbachem, PE., URS Greiner Woodward Clyde, for his assistance as the lead consultant during this product evaluation and for his efforts in preparing this report. ACCUTEST[®], Dayton, New Jersey, and Martel Laboratories JDS, INC., Baltimore, Maryland, performed laboratory analytical sampling and analyses. We would like to acknowledge the assistance and participation of Mr. Wayne Potter and Mr. John Lawson of Foster Wheeler Environmental Corporation along with Mr. Dennis Cossey, CEO of ThermoEnergy Corporation and Mr. Alex Fassbender, PE., Vice President of ThermoEnergy Corporation. Mr. Fassbender is the technology developer and patent holder of the ARP technology.

Publication of this report is made possible in part through the contributions by members of CERF's New Century Partnership:

- Black & Veatch
- CH2M Hill Ltd.
- Charles Pankow Builders
- Charles J. Pankow Matching Grant
- Kenneth A. Roe Memorial Program
- Lester B. Knight & Associates
- Parsons Brinckerhoff, Inc.
- The Turner Corporation



Harvey M. Bernstein
President
Civil Engineering Research Foundation

Disclaimer



The information in this document has been funded in part by the U.S. Environmental Protection Agency (EPA) under a Cooperative Agreement (CR 824884-01-0) with the Civil Engineering Research Foundation's (CERF) Environmental Technology Evaluation Center (EvTEC). This verification effort was supported under the EPA Environmental Technology Verification (ETV) Program. This verification effort has been subjected to EPA's and CERF's peer and administrative review. The ThermoEnergy Ammonia Recovery Process (ARP) was verified by EvTEC under the CERF Innovation Center Program as a wastewater technology in January 2000. EPA and EvTEC make no expressed or implied warranties as to the performance of the ARP. Mention of corporation names, trade names, or commercial products does not constitute endorsement or recommendation for use of specific products.

Preface



The Environmental Technology Verification (ETV) Program has been established by the U.S. Environmental Protection Agency (EPA) to evaluate the performance characteristics of innovative environmental technologies across all media and to report this objective information to the permittees, buyers, and users of environmental technology. EPA's Office of Research and Development (ORD) has established a five-year pilot program to evaluate alternative operating parameters and determine the overall feasibility of a technology verification program.

ETV began in October 1995 and will be evaluated through October 2000, at which time EPA will prepare a report to Congress containing the results of the pilot program and recommendations for its future operation. EPA's ETV Program, through the National Risk Management Research Laboratory (NRMRL), has partnered with the Civil Engineering Research Foundation (CERF) under an ETV Pilot Project to evaluate and verify market-ready environmental technologies. The following report describes the verification of the performance of the ThermoEnergy Ammonia Recovery Process (ARP).

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Acronyms

ARP	Ammonia Recovery Process
ASCE	American Society of Civil Engineers
CERF	Civil Engineering Research Foundation
DCS	distributed control systems
ETV	Environmental Technology Verification
EvTEC	Environmental Technology Evaluation Center
FWENC	Foster Wheeler Environmental Corporation
kg	kilogram
lb	pound
NYC-DEP	New York City Department of Environmental Protection
mg/L	milligrams per liter
P&ID	Process and Instrumentation Diagrams
PLC	programmable logic controllers
ppm	parts per million
ppt	precipitate
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
USEPA	U.S. Environmental Protection Agency
WPCP	Water Pollution Control Plant
WWTP	Wastewater Treatment Plant

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EvTEC assembled the Technical Evaluation Panel composed of representatives from the user community, academia, and the private sector. The Panel oversaw the development and execution of the EvTEC Evaluation Plan and the preparation of this Verification Report of the ThermoEnergy ARP technology. The Technical Evaluation Panel, with the cooperation and assistance of the applicant, identified specific project goals pertaining to this technology for it to achieve commercial acceptance by the domestic wastewater treatment community.